

**ABSTRACT OF THE DISCLOSURE**

An apparatus and method for analyzing the spectrum of a wavelength division multiplexed (WDM) optical signal, in wavelength division multiplexing (WDM) optical transmission systems, are provided. An optical filter includes an input unit for receiving a wavelength division multiplexed (WDM) optical signal via an optical transmission medium and outputting optical signals that have different incidence angles according to the wavelengths of the optical signals. Also, the optical filter includes a filter for receiving the optical signals from the input unit and separating the WDM optical signal into optical signals having different wavelengths using the difference between resonance lengths according to the different incidence angles. In order to analyze the spectrum of an optical signal, the optical signal is made incident upon etalon at different incidence angles according to the wavelengths of the optical signal, and the resonance length between two mirrors of etalon is varied according to the wavelengths of the optical signal. Accordingly, an optical spectrum can be obtained by detecting optical signals having different wavelengths.